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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,977	12/30/2003	Robert G. Wodnicki	RD-29,494	9676

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EXAMINER	
JAWORSKI, FRANCIS J	

ART UNIT	PAPER NUMBER
3768	

MAIL DATE	DELIVERY MODE
05/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/749,977	WODNICKI ET AL.	
	Examiner	Art Unit	
	Jaworski Francis J.	3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12-30-03 IDS*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *22 - 25* is/are allowed.

6)☒ Claim(s) *1,7,9,13 and 18-21* is/are rejected.

7)☒ Claim(s) *2-6,8,10-12 and 14-17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12-30-03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated, according to the specification page 6 lines 13 - 17. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 7, 9, 13, 18 - 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Savord et al (US6380766) alone or further in view of Smith et al (US5744898), alone or further in view of Leavitt et al (US6540682)or Miller et al (US5740806).

Savord et al teaches an integrated circuit 10 in association with an ultrasonic imaging array of individual transducer elements 20, where the integrated circuit 10 comprises a high voltage pulser 14, 24 a receive section amplifier 18 and transmit /receive switch 15 operative during the control of operational phasing, where the receive amplifier is protected in a first transmit state of the switch and unprotected during a second receive phase of the switch, but does not use a switch designated per se 'low voltage' for element 16, see col. 9 lines 30 – 55. However it is argued that Savord would include at least some low voltage control of this switch since power consumption is an IC constraint, and therefore the switch would be low voltage in terms of control under this argument.

A common drain configuration for the high voltage pulser is shown for example in fig. 11.

In the alternative, Smith et al teaches that when the transducer array for a handheld ultrasound probe or 2D such probe is made more efficient such as by multi-layering, then the transmit circuitry overall may be made lower voltage, see col. 16 lines 49 – 52.

In supplement thereto, Leavitt et al, cols. 4 – 5 bridging teaches that an ASIC architecture may be used to incorporate the front-end electronics into a probe, whereupon the lower voltage overall would result from such an integrated circuit having economy-of-scale.

In alternative supplement, Miller et al taught that when low voltage transmit/receive switching is applied to array transducers, slow response and switchover glitches are avoided, see col. 2 lines 25 – 38 and col. 7 discussion of Fig. 6, and therefore it would have been desirable to incorporate such into Savord alone or as modified for transducer efficiency per Smith et al.

Allowable Subject Matter

Claims 2 –6, 8, 10 – 12, 14 - 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 22 – 25 are allowed.

Patentability Assessment

Patentability for the base claims is currently being opposed under the arguments that a) Savord taught use of a CMOS/low voltage transmit and receive circuit where the transmit/receive isolation switch would include at least some low voltage portions such as its control input, and in supplement thereto b) Smith et al taught that where the transducer is made as a laminate then 'lower' voltages may be used through-out, in which case the claimed 'low' voltage encounters a 'relative to what' argument, or (c) that the modernizing tendency in the art is was fabricate the front end electronics in ASIC architecture anyway (Leavitt et al) , or (d) that the switching of transducer groupings was known to have been improved by low voltage application in a variety of forms since higher speed and less glitching artifact occurred (Miller).

Any inquiry concerning this communication should be directed to Jaworski Francis J. at telephone number 571-272-4738.

FJJ:fjj

4-24-07

Francis J. Jaworski
Primary Examiner